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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,653	06/10/2005	Takahiro Urakabe	273514US2PCT	3734
22850	7590	09/05/2007		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER SWENSON, BRIAN L	
			ART UNIT	PAPER NUMBER
			3618	
			NOTIFICATION DATE	DELIVERY MODE
			09/05/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	Application No. 10/538,653	Applicant(s) URAKABE ET AL.	
	Examiner Brian Swenson	Art Unit 3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/10/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-26 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 20, 23, and 25-26 recite the limitation "high-voltage-side **ones** of the DC voltage input/output terminal" (emphasis added by the examiner) in claims. There is insufficient antecedent basis for this limitation in the claim. Further, the word "ones" causes confusion. The examiner is not sure if the word "ones" is being used as a noun to describe a component of the DC voltage input/output terminal. Or is the word "ones" the plural form of "one", which is not believed to be grammatically possible.

Clarification is requested.

The claims have been examined to read – ...a high-voltage-side ones of the DC voltage input/output terminal... –

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claim 26, as best understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,923,279 issued to Shimane et al.

Shimane et al. teach in Figures 1-12 and respective portions of the specification of: an automobile power unit comprising: an engine (100); a motor (40) that transmits a dynamic force to the engine and starts the engine, and that receives a dynamic force of the engine during rotation of the engine and generates a power (see, at least, Col. 8, lines 21-27 and Figure 2 where the structure is shown);

a power conversion circuit (20) that has at least two DC voltage input/output (Figure 2) terminals and transmits a power to the motor;

a battery (10 or 60) that is connected to the power conversion circuit;

and a DC/DC converter (50) that is composed of at least two switching elements (switching circuit 51, and switching circuit 53, shown in Figure 3, are taken to be switching elements), that supplies the power conversion circuit with a power from the battery (10 or 60) by boosting a voltage thereof,

wherein the switching elements of the DC/DC converter connect a high-voltage-side of the DC voltage input/output terminals of the power conversion circuit to a high-voltage-side terminal of the battery (see Figure 3 where there are two lines shown schematically for connecting the batteries with the DC/DC converter; one line would inherently connect to a high voltage side of the battery);

wherein when the motor receives a dynamic force of the engine, generates a power, and charges the battery (see, at least, Col. 8, lines 21-27) through the power conversion circuit and the DC/DC converter, the switching elements provided in the

DC/DC converter are constantly turned on (no teaching was found for elements 51, 53 to be in an off state, so they are taken to be constantly turned on).

Shimane et al. disclose that it is known in the prior art to use a semiconductor for a switching device (see Col. 3, line 2, for example), but Shimane et al. does not state if the switching element (as disclosed above the switching circuits 51, 53 are taken to be switching elements) is constituted by a semiconductor element.

It would have been obvious to one having ordinary skill in the art at the time of invention to use a semiconductor element for a switching element in the switching circuits (51, 53) taught Shimane et al. One would be motivated to use a semiconductor element based on a semiconductors well-known use as a switching device and based on the commercial availability of semiconductors for use as switching elements.

***Allowable Subject Matter***

3. Claims 1-25 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The primary reason for the indication of allowable subject matter in this case is the inclusion of: a DC/DC converter for an automobile power unit with an engine and a motor with power conversion circuit, where the DC/DC converter contains at least two switching elements and the DC/DC converter operates in an energy storage source in a voltage-lowering manner and recovers energy stored in the energy storage source to the battery after the engine has been started by the motor and before power is

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generated by operating the motor as a generator powered by the engine, in combination with the other elements recited, not found in the prior art of record.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,002,221 issued to Ochiai et al. teaches of a control system for an electric vehicle.

U.S. Patent No. 6,333,612 issued to Suzuki et al. teaches of a motor control apparatus for a hybrid vehicle.


U.S. Patent No. 6,507,506 issued to Pinas et al. teaches of a voltage electrical distribution system that uses a voltage converter (20).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Swenson whose telephone number is (571) 272-6699. The examiner can normally be reached on M-F 9-5.

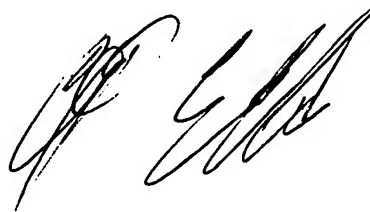
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Ellis can be reached on (571) 272-6914. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
bls

Brian Swenson  
Examiner  
Art Unit 3618



CHRISTOPHER P. ELLIS  
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